



September 27, 2007

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Mr. Joe Eller
Bureau of Air Quality
South Carolina Department of
Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: Pee Dee Generating Station Construction Permit Application Addendum:
Sulfur Content of the Design Fuel, Sulfuric Acid Mist Requirements, Cooling
Tower Efficiency, NO_x BACT Limits, and PM CEMS.

Dear Mr. Eller:

Pursuant to your recent request, Santee Cooper is submitting the following additional information on the following three matters: sulfur content of fuel, sulfuric acid mist (H₂SO₄) requirements, and cooling tower efficiency. In addition, Santee Cooper is submitting additional information on two other outstanding permitting matters that are relevant to setting NO_x BACT limits for the Pee Dee Units and requiring the use of continuous emissions monitoring systems (CEMS) for particulate matter (PM). This additional information is intended to clarify and supplement the PSD construction permit application for the new Pee Dee facility.

1. Sulfur Content of the Fuel

The design coal selected for the Pee Dee Station is eastern bituminous coal with a sulfur content of up to 3.5%. As required by the five-step BACT process, when selecting the design coal for the proposed Pee Dee Station, Santee Cooper evaluated low-sulfur Powder River Basin (PRB) sub-bituminous coal and eastern bituminous coal with lower sulfur content as control options to reduce emissions of SO₂ from the proposed project. Both of these control options for using lower-sulfur coal were eliminated by Santee Cooper during the BACT analysis.

As a general matter, Santee Cooper notes that the elimination of the two lower-sulfur coal control alternatives was based, in part, on a careful consideration of the energy, environmental, and economic impacts of those alternatives. Notably, Santee Cooper concluded that neither low-sulfur PRB sub-bituminous coal nor eastern low-sulfur bituminous coal was a viable option due to transportation constraints, risks and costs as well as supply limitations. The following discussion provides justification as to why

eastern bituminous coal with sulfur content up to 3.5% was ultimately selected as the design coal, instead of these two other lower-sulfur coal options.

Low-Sulfur PRB Sub-Bituminous Coal. This low-sulfur coal option can be eliminated under step 1 of the BACT analysis. Our conclusion is based on the fact that the lower heat content, higher ash content, and higher moisture content of PRB sub-bituminous coal would require a different boiler design, as well as other significant design changes to the coal material handling and other ancillary equipment at the proposed project. Based on these significant design changes, Santee Cooper determined that the use of this alternative coal would result in the redefinition of the project. As stated in EPA guidance and EAB decisions, a control technology, even if commercially available, need not be considered in the BACT analysis if the application of that control technology would require the permitting authority to redefine the project. As the significant changes to the project mentioned above would suggest, the selection of PRB sub-bituminous coal as the design fuel would redefine the project.

Santee Cooper also notes that PRB sub-bituminous coal should be eliminated under step 2 (relating to technical feasibility) and step 4 (relating to cost-effectiveness) of the BACT analysis. Reasons in support of this determination include the following:

- The transportation logistics and significant costs render the use of PRB coal infeasible. PRB sub-bituminous coal is mined in the western states, necessitating long distance transportation of the coal to the Pee Dee Station and inter-modal transfer of each coal shipment. CSX does not directly accept deliveries of western coals. Thus, to receive the western coal, Santee Cooper would have to arrange to have the PRB coal delivered by another supplier to a transfer location and then transferred to CSX rail.
- Reliance on the long-term supply of such sub-bituminous coals at the Pee Dee facility would impose a considerably higher railroad cost for the transport of this type of coal over much longer distances than eastern bituminous coals. Transportation cost would be further increased due to the lower heating value of western coals, which would require the transport of as much as 30-40% more coal than eastern bituminous coals. Additional railcar sets would be necessary for the transfer of the western sub-bituminous coal due to two primary reasons: (1) additional quantities of coal would be required due to the reduced heat content, and (2) increased travel distances from the western U.S. to South Carolina. Furthermore, the use of such coal also requires the purchase of additional rail equipment, which in turn results in increased emissions from locomotives as well as increased energy consumption.

- The risk of major supply disruptions is greatly increased due to the long transport distances and the existence of bottlenecks that have developed on the rail systems due to the increased use of this fuel. The Energy Information Administration made specific note of these transport risks in its 2005 U.S. Coal Supply and Demand. Among other things, this report states: "the one transportation issue that most affected the coal industry in 2005 was the disruption of rail traffic from the Powder River Basin . . . consumers experienced major disruptions in coal shipments that then resulted in precariously low stock levels." The threat of such supply disruptions further underscores the impracticality of Santee Cooper relying on western sub-bituminous coals as a long-term fuel source for the Pee Dee facility.

Low-Sulfur Eastern Bituminous Coals. Santee Cooper also considered eastern bituminous coals with lower sulfur content as a potential control technology to reduce SO₂ emissions from the proposed project. These coals, however, were rejected as the design basis when evaluating energy, environmental and economic impacts. One reason for this is that lower sulfur eastern bituminous coal is in high demand across the eastern United States and abroad. This increased demand is not just for use in the electric generation sector but also for use as a raw material in manufacturing. In addition, available veins of low-sulfur eastern bituminous coals are being exhausted and, as a result, electric utilities have begun in recent years to burn eastern bituminous coals with increasingly higher sulfur content levels. This trend is expected to continue (if not increase) for the foreseeable future within the Santee Cooper system as well as other utilities.

In conclusion, high demand for diminishing supplies of the lower sulfur eastern bituminous coals results in substantially higher cost per ton than the design coal ultimately selected for the project. Furthermore, such demands on these lower sulfur coals are likely to lead to constrained supply in the future which would further increase costs as well as jeopardize reliable generation. For these reasons, Santee Cooper must consider a wider range of higher sulfur coals for the Pee Dee facility, as indicated in the application by the sulfur content. In particular, Santee Cooper has selected as the design coal those mid-to-higher sulfur bituminous coals located in the eastern United States.

2. H₂SO₄ Requirements

Santee Cooper proposes to revise the current proposed H₂SO₄ BACT limit for each Pee Dee Unit. In particular, we are requesting the elimination of the provision that allowed for a demonstration period for achieving a proposed H₂SO₄ limit of 0.005 lb/MMBtu.

Under our prior proposed approach, the H₂SO₄ limit would not apply until Santee Cooper demonstrates that each Unit was able to achieve consistently the specified numeric limit during an initial demonstration period. However, recent H₂SO₄ testing on Cross Unit 3 now indicates that the proposed demonstration period is no longer necessary and the Pee Dee Units should be able to meet the proposed H₂SO₄ limit of 0.005 lb/MMBtu through the use of the flue gas desulfurization (FGD) system. To assure compliance with this H₂SO₄ limit (which corresponds to limits issued for other comparable new coal-fired units), Santee Cooper has designed the Pee Dee boilers so that they can easily accommodate sorbent injection ports into the boiler. The incorporation of this design feature will allow Santee Cooper to supplement the FGD system for controlling H₂SO₄ emissions with sorbent injection in the event that such supplemental H₂SO₄ reductions become necessary.

3. Cooling Tower Efficiency

Drift loss is affected by the design of the fiberglass and concrete components of the cooling tower, the types and feed rates of dispersant chemicals used in the process, and the water quality of the source which is, in this case, the Pee Dee River. Santee Cooper and its A&E firm have evaluated these factors and determined that the cooling tower design should be able to accommodate the lower drift loss of 0.0005%. Compliance may be demonstrated with documentation on site of the original performance guarantee.

4. Proposed NO_x BACT Limit

Santee Cooper prepared its NO_x BACT analysis based on an extensive review of other new coal-fired power plants that are currently under development or very recently came on line. This review, as presented in Table 5-2 in Volume I of the Pee Dee permit application, supports the selection of 0.07 lb/MMBtu rate, averaged over a 30-day period. Based on this review, Santee Cooper believes that the proposed NO_x limit is consistent with the recent PSD permit limits that have been set for similar coal-fired generating units using similar fuel and control technologies. One notable example is the 0.07 lb/MMBtu NO_x limit for the Prairie State Generating Station in Illinois, a recently permitted coal-fired plant whose permit was just upheld on appeal. This is just one of many examples of coal-fired generating facilities that received PSD permits with 30-day NO_x rates at or above 0.07 lbs/MMBtu, as noted at Table 5-2 in Volume I of the application.

In evaluating the achievability of NO_x control levels, Santee Cooper believes that permit levels set for utility units burning sub-bituminous coals are not useful BACT benchmarks for the Pee Dee facility. As noted above, sub-bituminous coals, and boilers designed to

burn them, have various characteristics that allow for somewhat lower NO_x uncontrolled emissions than bituminous coals and thus lower controlled emissions with the same SCR control efficiencies. A primary reason for this is the different characteristics of the coals. Sub-bituminous coals have higher moisture contents than bituminous coals and, therefore, boilers designed for sub-bituminous coals have larger furnace areas. The increased furnace areas results in lower flame temperatures and subsequent lower diatomic nitrogen dissociation. Emission limits that are associated with sub-bituminous coals and the specific boilers designed for these coals are not technically feasible or achievable for the Pee Dee Units given that the Pee Dee facility will be using bituminous eastern coal for the reasons explained above.

5. PM CEMS

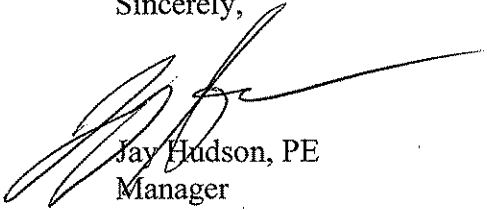
Santee Cooper believes it is inappropriate to require the installation and operation of PM CEMS hardware given the immaturity of this technology. The primary difficulty with PM CEMS technology is that it does not provide a direct measure of PM mass. If PM CEMS technology provided a direct measure of mass, then there would be no need for the elaborate and costly correlation testing programs required by PS-11. In simplest terms, the relationship between readings from the PM CEMS and concurrent reference method tests can be variable and unpredictable.

Santee Cooper's experience at Cross Unit 1 is representative of the problems facing the installation, certification, and operation of PM CEMS, especially when used in conjunction with a wet scrubber. From the outset, the PM CEMS probe has plugged frequently due to slurry carryover from the scrubber. These plugging issues are still ongoing despite a probe redesign and the implementation of blowbacks every four hours. In addition, the PM CEMS had significant communication problems that required months of troubleshooting and redesign work. These communication problems were so difficult to solve that SICK-Maihak, the PM CEMS manufacturer, had to transport a top engineer from Germany to address the issues just prior to the initial certification testing deadline, and less critical communication issues are still occurring. During this initial certification testing, Santee Cooper had difficulty achieving the range of PM emissions necessary to meet the Performance Specification 11 requirements, and this issue will be even more difficult, if not impossible, to solve on a Unit without scrubber bypass capabilities (Pee Dee 1 and 2 can not bypass flue gas, as their SO₂ removal efficiencies are in excess of 90%).

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Please let us know if you require additional information as we move through the comment process. We look forward to the issuance of the draft permit on public notice next week.

Sincerely,



Jay Hudson, PE
Manager
Environmental Management

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